DOCUMENT RESUME

ED 125 508 HE 008 107

AUTHOR Pfau, Richard H.
TITLE Teaching Expectations and Related Backgrounds of Foreign Science and Engineering Students at the University of Pittsburgh.
PUB DATE 17 Jun 76
NOTE 10p.
AVAILABLE FROM University Center for International Studies, University of Pittsburgh, Pittsburgh, Pennsylvania 15260

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Career Choice; *Engineering Education; *Foreign Students; Graduate Students; *Higher Education; Questionnaires; *School Surveys; *Teacher Programs; Teacher Qualifications; Teacher Seminars; Teacher Workshops; *Teaching Quality
IDENTIFIERS *University of Pittsburgh

ABSTRACT

The results are presented of a survey aimed at determining what proportion of foreign graduate students studying science and engineering at the University of Pittsburgh will teach after completing their studies, what preparation these students have for teaching, and if they are interested in preparing themselves while at Pittsburgh for college or university teaching. About 80 percent of the students who responded to the questionnaire either plan to teach, or think they might teach, after completing their studies. Of those who might teach, most indicated that they are interested in participating in a course, seminar, or workshop aimed at preparing them to be more effective college and university teachers. (Author)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED125508

TEACHING EXPECTATIONS AND RELATED BACKGROUNDS OF FOREIGN SCIENCE AND ENGINEERING STUDENTS AT THE UNIVERSITY OF PITTSBURGH

Richard H. Pfau
University Center for International Studies
University of Pittsburgh
Pittsburgh, Pa. 15260

Abstract

This report presents the results of a survey aimed at determining what proportion of foreign graduate students studying science and engineering at the University of Pittsburgh will teach after completing their studies, what preparation these students have for such teaching, and if these students are interested in preparing themselves while at Pitt for college or university teaching they may do.

17 June 19,6

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

HE 008 102

Background

Albert Baez, Chairman of the American Association for the Advancement of Science's Commission on Science Education, pointed out a reentry problem faced by many foreign science students who study at U.S. universities and return to their home countries. The problem is that their education in the U.S.A. usually does not equip these students for teaching science--a task, according to Baez (1974), which almost all of them from developing countries will be asked to perform.

The University Center for International Studies became interested in exploring to what extent such reentry problems might be faced by Pitt graduates, and how the University might respond to the needs of these students, if needs did indeed exist. The following represents the major findings of a survey undertaken as a part of these explorations. The survey was undertaken to (a) determine how many foreign science and engineering students expect to teach after completing graduate studies at Pitt, (b) determine how many of these students would be interested in participating in a course or workshop aimed at helping prepare them for future college teaching positions, (c) solicit suggestions concerning what such a course or workshop might deal with, and (d) determine relevant background characteristics of these students related to teaching.

Procedure

During the spring of 1976, a questionnaire was sent to all foreign graduate students studying engineering in Pitt's School of Engineering or studying science in the Faculty of Arts and Sciences. The students were identified by using a directory prepared by the University Office of International Student Services. The student listings derived from this directory were up-dated by checking with each concerned academic department to determine which students were then actually studying

at the university. Altogether, 83 engineering students and 78 science students were identified.

A questionnaire and cover letter were sent to each of these students. The questionnaire (shown in Appendix A) was pre-tested, revised, and sent during March and April of 1976. A follow-up memorandum was sent to non-respondants a month after the questionnaire was first sent to them.

Results

The questionnaire was completed and returned by 57 engineering students and 60 science students. This represents response rates of 69% and 77% respectively.

Based upon the questionnaires returned, it was found that 77% of the engineering students and 82% of the science students thought that they either would or might teach after they graduated from Pitt. Of these students, 73% of the engineering students and 59% of the science students indicated that they would participate in a course, seminar, or workshop aimed at making them more effective colleges teachers, or might do so depending upon the course and when it was offered. In terms of actual numbers, 32 engineering students and 29 science students seemed interested in further preparing themselves for future college teaching they may do. If we generalize to include non-respondants also, these figures are closer to 47 engineering students and 38 science students, or a total of about 85 persons.

Suggestions concerning what such a course or workshop should deal with were many and varied. Most frequently, students suggested that the course deal with general instructional techniques, including effective ways of presenting materials by lecture. Techniques of designing and organizing whole courses and individual class sessions were also frequently mentioned (by 10 or more students). Other topical areas suggested (by 5 or more students) included techniques of

communicating with students of varied backgrounds and interests, ways of evaluating students, introduction to the use of audiovisual aids such as the overhead projector, ways of stimulating student interest, and further preparation in the speaking of English.

Of those students who indicated that they might teach after graduating, it was found that 70% of the engineering and 78% of the science students had previously taught, mostly at the college level. In many cases this experience was acquired while in the position of teaching assistants. However, hardly any (i.e., 95%) of the engineering students had any formal preparation for teaching, except for on-the-job experience and subject-matter competence. Similarly, most science students (73%) have had no systematic preparation for teaching, except for physics students who participated in a one credit course required of all new teaching assistants in that department.

It was also found that most of the University's foreign science and engineering students are Asian. Of the 117 responses received, 69% were from south and east Asian students (mostly Chinese and Indian), 11% were from European students, 9% represented middle eastern countries, 7% were from Latin America, and only 3% were from Africa. Appendices B and C provide more detailed information about the countries of origin of these students, the departments in which they are studying at Pitt, as well as how many respondants from each department might teach and how many might participate in a course or seminar if it were offered.

Conclusions

A high percentage of the science and engineering foreign graduate students studying at Pitt either plan to teach, or think they might teach, after completing studies here. Many of these students have had no systematic preparation for

teaching, other than on-the-job experience and mastery of subject-matter knowledge. Of those who might teach, most are interested in participating in a course, seminar, or workshop aimed at preparing them to be more effective college and university teachers.

Bibliography

Baez, Albert V., "International Science Education," Science, Vol. 184, No. 4135, 26 April 1974.

Office of International Student Services, Directory of Foreign Students: Fall 1975-76, University of Pittsburgh, 30 October 1975.

APPENDIX A

FOREIGN GRADUATE STUDENT QUESTIONNAIRE

Name:_____ Country:_____

Department:_____ Date:_____

1. After completing graduate studies at Pitt, do you think you will teach in a college or university (in your own or another country)? __ Yes __ No __ Maybe

   (If you answered No, please do not answer the following questions, but return this questionnaire in the attached envelope by campus mail)

2. Have you ever taught before? __ Yes __ No

   If Yes, please indicate below at what levels you taught, and the number of years you taught at each level.

	No. of Years
__ College	_____
__ High School	_____
__ Elementary School	_____
__ Other	_____

3. Have you completed any teacher training or other courses in the field of education, in your country or at Pitt? __ Yes __ No

   If Yes, please briefly describe what education courses or training you have completed.

   _____

   _____

4. Would it be useful if Pitt conducted a special course, seminar, or workshop to enable you to be a more effective professor/teacher? __ Yes __ No

   If No, please indicate below why such a course, seminar, or workshop probably would not be useful to you.

   _____

   _____

5. Please suggest below what such a course, seminar, or workshop should deal with. Include topics or activities that you feel would be most useful to you.

_____

_____

_____

_____

_____

6. If such a course or seminar existed, would you participate in it? __ Yes __ No

If No, briefly indicate why not.

_____

_____

7. If you have any other comments or suggestions concerning the preparation of foreign graduate students for teaching positions, please indicate them below.

_____

_____

_____

THANK YOU for your help and time.

Please return this questionnaire by campus mail to:

Richard H. Pfau, UCIS, G-7 Mervis Hall.

Appendix B

Engineering Respondants Home Countries, Major Departments, and Expressed Interest in Education Training

Country	Department						Total
	Chemical and Petroleum Engineering	Civil Engineering	Electrical Engineering	Industrial Engineering	Mechanical Engineering	Metallurgical Engineering	
Asia, East and South (36 students)							
Rep. of China		2	2	2	3	3	12
Hong Kong			1				1
Thailand		1					1
India	3	1		2	6	8	20
Pakistan			1				1
Afghanistan		1					1
Middle East (8 students)							
Libya					1		1
Egypt		1	1	1			3
Lebanon					1		1
Turkey		2		1			3
Africa, Sub-Saharan (2 students)							
Nigeria		1		1			2
Latin America (7 students)							
Mexico			1				1
Guatemala				1			1
Colombia				1	3		4
Venezuela				1			1
Europe (3 students)							
U.K.			1			1	2
Italy					1		1
Not Indicated (1 student)		1					1
Total Responses	3	10	7	10	15	12	57
Will or Might Teach	2	9	4	9	13	7	44
Will or Might Participate in Course or Seminar	1	7	3	6	10	5	32

FAS Science Respondants Home Countries, Major Departments, and Expressed Interest in Education Training

Country	Department					Total
	Life Sciences	Chemistry	Crystallography	Earth and Planetary Science	Physics	
Asia, East and South (45 students)						
Korea	1	1	1		7	10
Rep. of China	1	9	2		12	24
Hong Kong	1				2	3
Philippines					1	1
India	1				3	4
Sri Lanka					2	2
Bangladesh					1	1
Middle East (3 students)						
Iran					2	2
Egypt				1		1
Africa, Sub-Saharan (1 student)						
Nigeria				1		1
South America (1 student)						
Guyana		1				1
Europe (10 students)						
U. K.		1		1	1	3
Poland					1	1
Romania	1	2				3
Yugoslavia					1	1
Cyprus		1				1
USSR		1				1
Total Responses	5	16	3	3	33	60
Will or Might Teach	5	10	3	3	28	49
Will or Might Participate in Course or Seminar	4	5	2	3	15	29